REMARKS

This Amendment is submitted in response to the Office Action mailed on February 24, 2006. Claims 1 and 4 - 14 are pending, with claims 11 - 14 being allowable if re-written. They have been so re-written. A check for $ 200.00 is enclosed to cover the fee for one additional independent claim.

SUMMARY OF MAJOR POINTS

Point 1

All claims, with the possible exception of claims 4 and 6 - 8, state that

1) S items are contained in a queue of a computer, and

2) the computer requests transmission time of S/δ, wherein δ is "latency."

Latency is the delay between (1) the request for transmission time and (2) the grant of the request. Plainly, when latency **increases**, as when the system becomes busy, then S/δ **decreases**. Thus, when the system gets busy (for example), the computer requests **fewer** time slots.

That concept has not been shown in the prior art. Thus, that concept cannot be used to combine the references. The other rationales used by the PTO do not lead to the combination of references, as explained herein.

Point 2

Most of the rationales for combining the references state that multiplying a number S (number of items in a queue) by $1/\delta$ will reduce, or eliminate, latency. However, Applicant respectfully submits that this is impossible, for several reasons.

One reason is that δ itself is latency. How can multiplying S by $1/\delta$, as a technical matter, reduce latency ? Latency is the time delay between (1) requesting time and (2) the grant of the request. How is that time delay affected by the multiplication in question ?

A second reason is that it is impossible to eliminate latency. The delay of latency simply cannot be removed. Some time must elapse between the request and the grant.

A third reason is that, even if latency is eliminated, then δ becomes zero. So, after latency has been eliminated, $1/\delta$ becomes infinity. That means that S/δ becomes infinity.

That means that Lyles has been modified to request an infinite amount of transmission time, which is impossible, and renders Lyles incapable of performing his intended function. The MPEP, cited below, prohibits this.

Since these rationales fail, no teaching has actually been given for combining the references.

Point 3

The factor $1/\delta$ has not been shown in the prior art, nor has the multiplication of that factor by S (number of items in a queue). The MPEP requires that all claim elements be shown in the prior art.

The Office Action relies on obviousness to show these items. However, obviousness is not a device for supplying claim elements not shown in the prior art. One reason is that no body of law exists to determine whether a missing element is "obvious." The law of obviousness is directed to other matters.

The factor $1/\delta$ and S, their multiplication together, and requesting a time based on the result must be shown in the prior art. That has not been done.

END SUMMARY

RESPONSE TO OBVIOUSNESS REJECTIONS OF CLAIMS 1 AND 10

Brief Description of Invention

Under the invention, multiple "nodes" (ie, computers) in a network share a common transmission line, like a "party line" in a telephone system of the 1950's. Each node has a queue of messages, which messages must be transmitted onto the transmission line. However, the nodes cannot all use the single transmission line simultaneously because data collisions would occur.

To avoid collisions, each node requests time slot(s), from a central agency, to transmit the node's messages. Each node then uses its allocated time slot(s), to transmit its messages, and no other nodes use the transmission line during those slot(s).

For reasons explained in the Specification, when each node requests its time slots, it requests fewer slots than it needs. But it repeats those requests of fewer-than-needed-slots. The total slots requested, in the multiple requests, are sufficient to empty the queue.

In a specific embodiment, the smaller number of slots requested equals a specific number, namely,

(1) the size S of a node's queue,

divided by

(2) a delay time δ (delta),

or S/δ.

Claim 1

Claim 1 was rejected as obvious, based on its preamble and Lyles.

Point 1

Lyles is cited to show the claim recitation of "the step of scaling said request by a factor of $1/\delta$." As just explained, this can mean that, if a number slots S is needed to empty a queue, then the requested number of slots is S/δ.

However, under the terms of the claim, "δ" is defined as a "reservation latency."

The Office Action has only asserted that Lyles shows scaling a request by a "factor." The Office Action has not shown the "factor" to be the claimed "reservation latency" (or its inverse).

Therefore, the claimed "scaling said request by a factor of $1/\delta$" has not been shown in the prior art. At best, the PTO has shown scaling by a "factor," but not the "factor of $1/\delta$." MPEP § 2143.03 states:

> To establish prima facie obviousness . . . **all the claim limitations** must be taught or suggested by the prior art.

Point 2

The Office Action cites two passages in Lyles as showing the

claimed "scaling by a factor." One passage is column 10, lines 21 - 29, which states:

> . . . The time of arrival of the request 405 as received by the head-end controller 105 may be measured by a conventional clock, e.g., by a hardware clocking mechanism.
>
> The term "class of service" refers to a group of data flows that receive similar treatment with respect to allocation of loss and delay. (See the Definitions in the Background section.) The class of service factor may be used to select an algorithm for generating the virtual scheduling time, e.g., weighted fair queuing or round-robin.

The other passage is column 5, lines 35 - 43, which states:

> Real-time applications may require data be transmitted through the network with bounded jitter (e.g., packet delay variation). These applications are said to have inelastic or real-time bandwidth requirements. [Citation.]

The Inventor points out that neither passage shows the claimed "factor." The claimed "factor" is a weighting, or percentage, used to reduce a demanded number. For example, if a given queue at a node required 100 time slots to be emptied, the "factor" may be 1/10, so that the claimed number of time slots requested is 10, not the full 100.

The cited passages in Lyles do not show such a "factor." The first passage merely states that a certain characteristic ("class of service") is used to select an algorithm. The algorithm then

allocates times-for-transmission ("scheduling time") for a computer.

But that does not show the claimed type of "factor," for several reasons.

REASON 1

One reason is that, under the claim, the node itself selects, or computes, the factor. In Lyles, some other agency selects the algorithm (which is not a factor).

REASON 2

A second reason is that the cited passages in Lyles do not show (1) computing size of a queue, and (2) making a request which is a "factor" (or percentage) of that size. Instead, the first cited passage states that "scheduling time" is chosen for a computer based on an algorithm. It is not chosen based on size of queue. So computing size of a queue is not needed in Lyles, and thus not present. And neither passage shows making a request which is a "factor" of the size of the queue.

REASON 3

A third reason is that no "request" as claimed is shown in Lyles. The claimed "request" is said to be present in the other "reference," namely, AAPA, Applicant's Admitted Prior Art.

However, a connection still must be shown between the "factor" shown in Lyles and the "request" in AAPA (because the former "scales," or adjusts, the latter.) No such connection has been shown.

CONCLUSION

Therefore, Applicant submits that the claimed "scaling" of the "request" by a "factor" has not been shown in Lyles. Even if the references are combined, that recitation is not found.

Point 3

The Office Action admits that Lyles does not show "$1/\delta$," but that such is "obvious."

Applicant submits that this is a mis-application of the law of obviousness. Obviousness is not a vehicle to used to supply claim elements not shown in the prior art. As the MPEP section cited above indicates, all claim elements must be shown in the prior art.

Point 4

Applicant submits that no valid teaching for combining the references has been given.

The rationale given is that "[incorporating] **this feature** into AAPA and Lyles . . . reduce[s] latency in allocating bandwidth to

users."

"This feature" is the term "$1/\delta$," or 1/latency. Applicant submits that several problems exist in this rationale.

PROBLEM 1

The rationale states, in essence, that multiplying a request by 1/latency will reduce latency. Applicant points out that latency is the delay between the times of (1) a request and (2) a grant of the request.

How does multiplying a request by 1/latency reduce latency ? Applicant cannot see how this reduction is attained, and thus submits that this rationale fails to show an expectation of success. MPEP § 706.02(j) states:

> Contents of a 35 U.S.C. 103 Rejection
>
> . . .
>
> To establish a prima facie case of obviousness, three basic criteria must be met.
>
> . . .
>
> Second, there must be a reasonable expectation of success.
>
> . . .
>
> The . . . reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.

Applicant submits that the rationale, in asserting that

multiplication by 1/latency reduces latency, fails to show an expectation of success, as required.

How is latency actually reduced by multiplying something by 1/latency ? This has not been shown, only asserted to be present. A naked assertion is insufficient.

PROBLEM 2

The Office Action has not shown precisely what in Lyles is multiplied by 1/latency (ie, $1/\delta$). Thus, again, no expectation of success has been shown.

Applicant requests, under 37 CFR §§ 1.104(c)(2) and 35 U.S.C. § 132, that the PTO specifically identify the element in Lyles which is multiplied by $1/\delta$.

Point 5

The term δ in the claim refers to latency. Latency is the delay between requesting time slots and the grant of the time slots. The number S in the queue is divided by latency (ie, S/δ), and that quotient (ie, S/δ) is requested.

Thus, if latency is large, as when the system is busy, a smaller number is requested. For example, assume 100 units in the queue.

-- If latency is 50 (busy system), then 2 units are requested.

-- If latency is 10 (not busy), then 10 units are requested.

Thus, under the claim, the number requested **decreases** as busyness of the system **increases**.

That concept has not been shown in the references. Nor has a rationale for pursuing that concept been advanced by the PTO. And the other rationales given do not lead to the claim.

Claim 10

Claim 10 recites:

> 10. The method of claim 1 wherein said request equals the size S of a queue of a user divided by δ, namely, S/δ.

This has not been shown in the references, even if combined. Applicant requests that "S," "δ," and "S/δ" be identified in the applied references.

RESPONSE TO OBVIOUSNESS REJECTIONS OF CLAIMS 4 - 9

Claim 4

Claim 4 recites:

> 4. Apparatus for use with a headend node which allocates time slots on a channel to users, comprising:
>
> a) a user node which

i) utilizes the channel, and

ii) holds a queue of messages;

b) means at the user node for

i) ascertaining a number N of time slots required to handle the queue; and

ii) requesting the headend node to allocate to the user node a fraction of the N time slots.

The Office Action admits that claim 4(b)(ii) is not found in Lyles, but that such an element is "obvious."

Point 1

Applicant points out that this claim element must be shown in the prior art under MPEP § 2143.03, set forth above. "Obviousness" is not a device to supply claim elements not shown in the prior art.

Point 2

Claim 4(b)(ii) is contrary to Lyles, and thus Lyles teaches away from the claim. Lyles states that sometimes a computer will ask for **more time slots** than needed to empty the queue. (Column 12, line 20 et seq.) This teaching is contrary to the claim.

Point 3

Applicant can find no statement in Lyles that a computer in

Lyles ever asks for fewer time slots than needed to empty its queue. Thus, claim 4(b)(ii) is not found in Lyles.

However, assuming arguendo that Lyles does show a request for fewer-than-needed time slots, that is contradictory to the request in Lyles of Point 2, immediately above.

Thus, Lyles contains arguendo two self-contradictory teachings. The PTO has provided no rationale for selecting one teaching over the other. A teaching is required.

Point 4

As a rationale for combining the references, the Office Action, page 3, bottom, asserts that requesting a fraction of N slots in Lyles "[eliminates] latency in transmitting messages/packets."

Applicant respectfully submits that this rationale is impossible. As explained above, "latency" is the delay between a request and the grant. It is impossible to "eliminate" that delay.

Therefore, the stated purpose of combining the references is to attain an impossible goal. That cannot be a teaching under section 103.

Point 5

If latency is actually eliminated, then δ becomes zero. So

S/δ becomes infinity. That means that Lyles then asks for an infinite amount of time to transmit the messages.

That is impossible.

The PTO's combination of references renders Lyles incapable of performing his intended function. MPEP § 2143.01 prohibits this:

> THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE.
> . . .
> THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE.

Claim 5

The discussion of claim 1 applies to claim 5.

Claim 6

Point 1

Claim 6 recites:

> . . . (3) delays D can induce repetition of an initial request by a node and consequent multiple allocations in response to the initial request, thereby causing allocation of excessive time slots in response to the initial request . . .

This recitation has not been shown in the prior art, as required.

Point 2

Claim 6(b) and (c) have not been shown in the prior art, as required.

Point 3

The Office Action states that the processes of claim 6(b) and (c) serve to eliminate latency. As explained above, that is impossible.

Thus, this statement cannot be used as a rationale for combining the references, and no other rationale has been set forth.

Point 4

If latency is eliminated, then latency becomes zero.

If latency is zero, then 1/latency (ie, $1/\delta$) becomes infinite.

Then the request made (ie, S/δ) becomes infinite.

The PTO's modification of Lyles renders Lyles inoperative. That is, after latency is supposedly eliminated, Lyles' computers then request an infinite number of time slots. But no computer can be allowed to do that.

MPEP § 2143.01, set forth above, prohibits this.

Point 5

Even if the processes of Point 2, above, do eliminate latency,

that is not a teaching for adding those processes to Lyles.

That is, the PTO has merely set forth the supposed properties of two processes. But every process has certain properties.

The existence of properties in a process is not a teaching for adding the process to a reference.

Claims 7 and 8

Claims 7 and 8 are considered patentable, based on their parents.

Claim 9

Claim 9 states that the delay is measured in units of time slots. That has not been shown in the prior art.

CONCLUSION

Applicant requests that the rejections to the claims be reconsidered and withdrawn.

Applicant expresses thanks to the Examiner for the careful consideration given to this case.

Respectfully submitted,

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